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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,589	07/18/2005	Toshinobu Fukui	14200/023001	1827
22511	7590	09/11/2007	EXAMINER	
OSHA LIANG L.L.P. 1221 MCKINNEY STREET SUITE 2800 HOUSTON, TX 77010			KOSLOW, CAROL M	
		ART UNIT		PAPER NUMBER
		1755		
		MAIL DATE		DELIVERY MODE
		09/11/2007		PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/517,589	FUKUI, TOSHINOBU
	Examiner	Art Unit
	C. Melissa Koslow	1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 July 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>2/05, 12/04</u> .	6) <input type="checkbox"/> Other: ____

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The same Japanese references were cited in both the information disclosure statement of 9 December 2004 and 25 February 2005. The second set of the Japanese references were considered since they were the English translations of the Japanese language references first cited in the information disclosure statement of 9 December 2004.

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either an application data sheet or supplemental oath or declaration.

The oath gives applicant's residence as "c/o EZ Bright Corporation" and then gives the address for EZ Bright Corporation. The Application Data Sheets also do not give applicant's residence. They give the same mailing address as that given in the oath. The acronym "c/o" means "in care of" and is used to indicate mail that is not delivered to ones residence. Thus "c/o EZ Bright Corporation" and then gives the address for EZ Bright Corporation is not applicant's residence.

The drawings are objected to because figures 2a and 2b are too dark. They appear as black rectangles in the Examiner's electronic file. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and

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where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The disclosure is objected to because of the following informalities:

The specification states "transition metal element such as lanthanoid", but lanthanoids are not, by any conventional chemical definition a transition metal". This statement also does not clearly redefine "transition metal element" since it raises the question as to what is applicants' definition of this term since it cannot be the conventional definition. It is noted that on page 8, lines 17-19, applicant treats transition metals as different from lanthanoids. The formula on page 8 teaches  $A_{1-z}D_xE_y$ . In the art, it is known that D should substitute for A and thus A should be  $A_{1-x-y}$ . Since D is only Eu and G is only Al, it is suggested to rewrite the formula as  $(A_{1-x-y}Eu_xE_y)O^*a(Al_{1-z}H_z)_2O_3$ . Finally, the specification teaches the formula is that for an alkaline earth aluminate, but A can be Zn, which is not an alkaline earth metal. This discrepancy needs to be corrected. Appropriate correction is required.

Claims 3 and 7 are objected to because of the following informalities: Since D is only Eu and G is only Al, it is suggested to rewrite the formula as  $(A_{1-x-y}Eu_xE_y)O^*a(Al_{1-z}H_z)_2O_3$ . In addition the phrase "one element or two or more elements" is wordy and unnecessary. It is

suggested to use the phrase "at least one element" in place of the above phrase. Appropriate correction is required.

Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

This claims teaches the particle size of the powder is 100 microns or smaller. Page 6, lines 15-16 teaches away from particles having a smaller less than 1 micron and teaches the particle size is in the range of 1-100 micron. Thus the claimed range of "or smaller" is taught away by the specification. This discrepancy needs to be clarified.

Claims 1-3 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite since it defines lanthanoids as transition metals. Lanthanoid are not, by any conventional chemical definition a transition metal" and claims 3 and 7 treat transition metals and lanthanoids as different. Regarding claim 1, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention, especially since lanthanoids are not transition metal elements. See MPEP § 2173.05(d). Claim 2 is indefinite is the actual particle size range is unclear since the claims teaches both the range of 1-100 micron and the range of 100 micron or smaller. The formula in claims 3 and 7 teaches  $A_{1-z-y}D_xE_y$ . In the art, it is known that D should substitute for A and thus A

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should be  $A_{1-x-y}$ . Finally, claim 1 teaches the formula is that for an alkaline earth aluminate, but A can be Zn, which is not an alkaline earth metal. Thus claims 3 and 7 are indefinite.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 6,423,247.

The references teach spherical particles of light-storing fluorescent lanthanoid activated alkaline earth aluminate. These particles read upon those claimed. The examples teach the strontium aluminate light-storage spherical particles having a size in the range of 0.4-0.8 micron, which falls within the claimed range of smaller than 1-100 microns. The references teach the claimed powder.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,423,247 in combination with JP 2000-1672.

As stated above, U.S. patent 6,423,247 teaches a spherical powder of light-storing fluorescent lanthanoid activated alkaline earth aluminate. Column 4, line 25 through column 5, line 25 of U.S. patent 6,423,247 teach the alkaline earth aluminate can be known alkaline earth aluminate, that the aluminate is activated by 0.05-10 wt% europium and co-activated with 0.02-10 wt% of an activator selected from Nd, Dy, Ho, Er, Tm, Yb and Lu and that the aluminate can contain 0.01-10 wt% of boron. These references also teach the disclosed process overcome the problems obtained when the conventional solid-state method is used (col. 2, lines 6-62; col. 3, lines 33-38 and examples) Given these teachings, one of ordinary skill in the art would have found it obvious to form spherical powders of any known light-storing fluorescent lanthanoid activated alkaline earth aluminate using the method disclosed in U.S. patent 6,423,247. JP 2000-1672 teaches a light-storing fluorescent lanthanoid activated alkaline earth aluminate having the claimed formula, but it does not teach spherical particles of this aluminate and the taught particles are produced by the conventional solid-state method. One of ordinary skill in the art would have to form powders of the light-storing fluorescent lanthanoid activated alkaline earth aluminate of JP 2000-1672 using the method disclosed in U.S. patent 6,423,247 to overcome the problems with the solid state method discussed in U.S. patent 6,423,247. The resulting particles would be spherical and suggest those of claims 3 and 7.

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Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5,644,193.

This reference teaches forming spherical phosphor particles by preparing phosphor particles and passing them through a high temperature thermal plasma region, where the plasma can be a direct current plasma jet or a high-frequency induction heating plasma (col. 6, lines 5-6 and col. 9, lines 25-37). Column 11, line 13 teaches the phosphor can be composed of ZnS:Cu, which is a known light-storage fluorescent material. Thus the reference suggests producing spherical ZnS:Cu particles, which are light-storage fluorescent particles, by preparing phosphor particles and passing them through a high temperature thermal plasma region, where the plasma can be a direct current plasma jet or a high-frequency induction heating plasma. The reference suggests the claimed method.

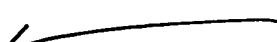
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk  
September 7, 2007

  
C. Melissa Koslow  
Primary Examiner  
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